



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of : Docket No.: OT-4607  
Y. Tsukahara et al. : Date: September 17, 2003  
Serial No.: 10/070,712 : Group Art: 3651  
Filing Date: March 5, 2002 : Examiner: Gene Crawford  
Title: STEP FOR ESCALATOR

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**REQUEST FOR RECONSIDERATION**

In response to the Office Action dated June 17, 2003, Applicants request favorable reconsideration of the above-referenced application in view of the following remarks.

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**REMARKS**

Claims 1-6, of which claim 1 and 2 are independent, are pending in the application.

Initially, Applicants gratefully acknowledge the Examiner's indication that claims 5 and 6 would be allowable if rewritten in independent form. However, since Applicants believe that claim 2 is allowable for the reasons discussed below, claims 5 and 6 have not been so rewritten at this time.

**Abstract**

The Office Action indicates that the application does not contain an abstract and requires an abstract on a separate sheet. However, page 8 (copy enclosed) of the originally filed application, included an abstract. Applicants request withdrawal of the requirement.

Independent Claim 1

Claim 1 is rejected under 35 USC § 103(a) as allegedly being unpatentable over Ahls et al. in view of Saito et al. This rejection is respectfully traversed.

Independent claim 1 recites that longitudinal grooves are formed on the surface of riser cleats.

On the other hand, as noted in the Office Action, Ahls et al. discloses riser cleats but no grooves. Saito et al. discloses deforming sheet metal support surfaces to provide grooves on cleat surfaces. Although primarily illustrating transverse grooves on the cleats of the tread surface of escalator steps, in one embodiment (Fig. 7A) Saito et al. appears to disclose longitudinal grooves.

According to the Office Action, it would have been obvious from the teachings of Saito et al. to provide the riser cleats of Ahls et al. with such longitudinal grooves. As motivation for such a modification of Ahls et al., the Office Action cites to the functions of the grooves described in Saito et al., i.e., for non-skid purposes, to increase strength, and to provide a hardened wear surface.

However, Saito et al. explicitly relates to support surfaces or horizontal contacting surfaces that are formed of sheet metal (column 1, lines 21-29). There is no indication that the riser in Ahls et al. is either a support surface or formed of sheet metal. As a result, there would have been no objective reason to modify the riser in Ahls et al. to include the grooves of Saito et al.

Since the riser surface of Ahls et al. is not a support surface, none of the asserted motivations for modification apply. It would actually decrease safety for a riser surface to be non-skid (the function of the grooves in the subject application is to avoid entrapments that can result from adhesion between the riser surface and passengers' shoes). And since the riser does not experience the loads or wear of the tread surface, there is nothing to indicate that increased strength and wear hardening are necessary. Applicants note that Saito et al. does show riser surfaces (e.g., Figs. 1 and 18) without any mention of forming grooves in the cleats.

Further, Applicants can find no indication in Ahls et al. that the riser is formed of sheet metal. The only disclosure in Ahls et al. regarding formation refers to casting (column 1, lines 57-59). The figures in Ahls et al. do not show corrugation in the manner of Saito et al., but appear to show cast steps. Since Ahls et al. does not appear to show formed sheet metal riser, the deforming process disclosed in Saito et al. would not apply. (This is especially true considering the lack of motivation to make the riser non-skid, since even assuming that the other two asserted motivations – increased strength and wear hardening – applied to a riser, Saito et al. only discloses that they would be achieved with a sheet metal surface.)

Therefore, Applicants respectfully submit that there would have been no objective reason to modify the riser of Ahls et al. to incorporate the grooves of Saito et al.

Independent Claim 2

Turning to claim 2, that independent claim (along with dependent claim 3) is rejected under § 103(a) as allegedly being unpatentable over Schoeneweiss in view of Ahls et al. This rejection is respectfully traversed.

Claim 2 recites that a non-slip surface is mounted to the step rear edge, from which the riser extends downward.

According to the Office Action, Schoeneweiss discloses an escalator step that includes an allegedly non-slip surface (citing edge molding 10) mounted to its rear edge, but does not disclose a riser (for which the Office Action relies on Ahls et al.). Applicants respectfully disagree.

Schoeneweiss does disclose a riser (backing element 5), and the edge molding 10 is not mounted to the edge from which the riser extends downward. A riser is a standard and necessary feature of an escalator step. A quick comparison of the location of the stub axles (element 36 in Fig. 2 of Ahls et al.; unnumbered in Figs. 1, 2, 6 and 7 of Schoeneweiss) for mounting rollers (not shown in either; column 2, line 64 of Ahls et al.; column 2, line 49 of Schoeneweiss) confirms that the backing element 5 is a riser.

Further, even ignoring the disclosed location of the edge molding 10 in Schoeneweiss, there is no indication whatsoever that the edge molding is non-slip.

Finally, even ignoring the disclosure of a riser (and the location of the edge molding 10 relative thereto) and the lack of disclosure that the edge molding is non-slip in Schoeneweiss, and assuming that Ahls et al. would suggest the incorporation of a riser, there would have been no objective reason to locate that riser so as to depend from an edge to which the edge molding is applied.

Therefore, Applicants respectfully submit that there would have been no objective reason to modify the step of Schoeneweiss as asserted, and that, even if so modified, not all of the features recited in claim 2 would have been disclosed or suggested.

Dependent Claims

As noted, claim 3 is rejected under §103(a) as allegedly being unpatentable over Schoeneweiss in view of Ahls et al. Claim 4 is rejected under §103(a) as allegedly being unpatentable over the foregoing combination further in view of Saito et al. These rejections are respectfully traversed.

Claims 3 and 4 are allowable by virtue their dependence on claim 2. Saito et al., which is cited for its disclosure regarding serrated cleats, does not overcome the above-noted deficiencies in the disclosures of Schoeneweiss in view of Ahls et al. Further, these claims recite features in addition to those included in claim 2, and are submitted to be patentable in their own right. Further independent consideration of the dependent claims is requested.

Conclusion

For the reasons set forth above, Applicants request withdrawal of each rejection and requirement set forth in the Office Action. Favorable reconsideration is requested.

Respectfully submitted,



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## Abstract

An escalator step riser is improved by adding grooves to the cleat surfaces, and, at the same time, a skid-inhibiting function is realized at the rear edge of the step.

5 For escalator step (1), cleats (5a) are formed with a pitch twice that of tread (4) on riser (3). On each cleat (5a) of the riser (3), one or more grooves (6) are formed in the longitudinal direction. In addition, skid-inhibiting surface (7), made of a synthetic resin and having a prescribed width, is attached in a quick connecting/disconnecting manner on the rear edge of step (2). A serrated irregular portion (7c) is formed on the upper surface of  
10 cleats (7a), (7b) of the non-slip surface (7).